

MEMORANDUM FOR ARMY BOARD MEMBER, COLONEL PATRICK DUNKLE
NAVY BOARD MEMBER, CAPTAIN MIKE HERB
AIR FORCE BOARD MEMBER, COLONEL DANIEL TOMPKINS
MARINE CORPS BOARD MEMBER, MR. JERRY MAZZA

SUBJECT: Removal of 7-Bar Designation from the Air Force Modular Storage Magazine
and Actions being taken to restore the 7-Bar Designation to both Existing and New
MSM Construction

- References: (a) AFSC/SEW Message of 07 February 2002, Subject: Design Problems with
Modular Storage Magazine, U.S. Army Corps of Engineers Drawing 421-80-06
- (b) AFSC/SEW Message of 12 March 2002, Subject: Design Problems with
Modular Storage Magazine
- (c) DoD 6055.9-STD, Department of Defense Ammunition & Explosives Safety
Standards, dated July 1999

In January 2002, the Air Force Safety Center (AFSC) discovered a serious problem with the doors of the Air Force's Modular Storage Magazine (MSM), an earth-covered magazine (ECM). This door problem is fully explained in references (a) and (b). In summary, the doors specified on the MSM design drawings are not the same as those that were successfully tested in a full-scale MSM test in 1988, and for which the Department of Defense Explosives Safety Board (DDESB) granted a "Standard" (now called 7-Bar) structural strength rating in 1994. The doors currently specified on the drawings are a weaker design, and a structural analysis of these doors has shown that they do not meet 7-Bar or 3-Bar criteria. As a result, all MSM with the weaker doors must be considered "Undefined" ECM and must be treated accordingly. This problem basically impacts all MSM designs currently in existence. The two specific MSM designs affected by the door problem are specified in the below drawing sets (Note: Each set represents an MSM design):

- a. Hill AFB Drawings 9210827 through 9210832, dated 09 April 1993, with Sheets S-8 and S-9 (doors and doorframe assembly), from Savannah District Corps of Engineers (COE) Drawing 422-264-03, dated 11 May 1990 (Note: Details from Sheets S-8 and S-9 of COE Drawing 422-264-03 were later transferred onto United States Air Force (USAF) Drawing 9484969.)

b. Huntsville District COE Drawing 421-80-06 (Note: Drawing 421-80-06 was assembled in 1999 at the request of the AFSC, to consolidate USAF Drawings 9210827 through 9210832, and 9484969 under one drawing number.)

Copies of the above two drawing sets can be obtained from AFSC/SEW website:
<http://safety.kirtland.af.mil/AFSC/RDBMS/Weapons/oteamsiteplanning.htm-fil>.

As discussed in reference (b), the AFSC is developing a retrofit door and doorframe assembly design for installing the correct doors onto MSM constructed to the two drawing sets specified in subparagraphs a. and b. above. Once the retrofit design has been accomplished, retrofitted MSM can again be considered 7-Bar ECM. The AFSC expects to forward the retrofit design to the DDESB for approval by mid-April 2002. Upon approval by the DDESB, the retrofit door design will be made available via the AFSC/SEW website and the DDESB website at: <http://www.ddesb.pentagon.mil/ddesb/>.

The DDESB approved retrofit design can only be used for MSM constructed to the two drawings sets listed in subparagraphs a. and b. above. The retrofit design will not apply to MSM constructed to Savannah District COE Drawing 422-264-03, dated 11 May 1990, or to Hill AFB Drawings X8745127 through X8745138, X8745146, and X8851911, these will continue to be treated as "Undefined" ECM as they always have been. The reason for this is that the MSM constructed to these two designs have weaker roofs, which will not permit them to be classified as other than "Undefined."

The retrofit of existing constructed MSM to meet 7-Bar criteria is not mandatory. Installations can opt to treat their MSM as "Undefined", but this will require such MSM to be resited to meet "Undefined" ECM criteria of reference (c).

Installations that opt to retrofit their MSM must bring them into compliance with "Undefined" criteria of reference (c), until such time as the MSM are retrofitted. Once the retrofit is accomplished, these MSM can again be treated as 7-Bar ECM. In the interim and until such time as the retrofit has been completed, installations must submit a letter to the DDESB Secretariat, stating their intent to retrofit their MSM to meet 7-Bar criteria. The letter must include narratives of the actions taken for each MSM to meet "Undefined" criteria of reference (c). A copy of this letter must be maintained with DDESB approved site plans as a permanent record at the installation of origin.

To address the immediate issue of new construction (i.e. proposed MSM that were to be constructed to COE 421-80-06), at installations where projects are on hold because of the MSM door problem, the AFSC is coordinating the development of new door and doorframe assembly details to replace existing door and doorframe assembly details currently found in COE Drawing 421-80-06. These new details will reflect the tested door and frame assembly that were granted "Standard" (7-Bar) approval by the DDESB in 1994. These new details will be forwarded to the DDESB for review and final approval. The outcome will be that MSM constructed to COE Drawing 421-80-06 and the DDESB approved new door and doorframe assembly details will be considered 7-Bar ECM and will be the only 7-Bar MSM design approved for new construction.

In addition, the AFSC is coordinating the development of a new MSM drawing set with its own unique drawing number to consolidate COE 421-80-06 and the new door and doorframe assembly details mentioned in the previous paragraph. The intent of this effort is to avoid a situation where there are two revisions of COE 421-80-06; one with the incorrect door design, and the other with the correct door design. Development of a new drawing set number provides a clean break between the two MSM designs. Once developed, the AFSC will forward the new MSM drawing set to the DDESB Secretariat for review and approval as a 7-Bar ECM. Upon DDESB approval, this new drawing set will be the only 7-Bar MSM design approved for new construction. No time frame has been provided by AFSC to accomplish this task.

Request this letter be given the widest possible dissemination.

DDESB Technical Paper 15 will be updated to list the various design versions of MSM that will exist, to include the appropriate structural designation (i.e. 7-Bar, 3-Bar, or Undefined) for each.

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